WEATHER OF THE MONTH.

WEATHER OF NORTH AMERICA AND ADJACENT OCEANS.

GENERAL CONDITIONS.

By A. J. HENRY, Meteorologist.

In September in the Northern Hemisphere the barometric gradients are the weakest of the year and the control of the surface winds is least pronounced. The area of maximum pressure still overlies the middle portion of the North Atlantic with a westward extension into the eastern half of the North American continent. The barometer level in this HIGH is below 30.20 inches. Mean pressure is lowest in the Arctic with centers of greatest depression in the vicinity of Iceland and over the Aleutians. The change in mean pressure from August to September leads to the reestablishment of the continental HIGHS and is preparatory to the setting in of the vigorous circulation of winter.

NORTH PACIFIC OCEAN.

F. G. TINGLEY, Meteorologist.

Additional ship reports, as well as press dispatches, give further evidence of unusual typhoon activity in Asiatic waters during the present season, the series of tropical storms which began near the end of July continuing beyond the middle of September.

The first of the September typhoons had its inception during the closing days of August and reached the Eastern Sea to the northward of Formosa during the night of the 31st. The U. S. Army transport *Sherman*, from Manila for Nagasaki, felt the full force of this storm near latitude 27° N., longitude 127° E., during the day and night of September 1. Mr. Paul R. Wright [1] gives the following account of the conditions at the height of the storm:

> At daylight I crawled out again and for some hours was privileged to behold one of the wildest and most sublime scenes that men have ever looked upon and lived to tell about. The storm was at its height. The wind was coming in gusts that reached 120 miles an hour. The air was simply filled with the white spume of the sea, just as the air is filled with snow in a great storm at home. To windward it was impossible to see more than 100 feet and to leeward not much farther. Yet through this white welter we could see something of the heights and depths that hemmed us in more than masthead high, with writhing slopes like the sides of mountains.
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> The wind pitched itself at us with a force that made the gale of the night before seem puny and ineffective. Altogether it was an exhibition of violence unsurpassed. The nearest approach to it is afforded by Niagara Falls, as you ride up to the foot of the tumbling waters in the *Maid of the Mist*, or walk under them to the Cave of the Winds. But here both air and water were like a Niagara let loose and driving themselves down upon our little steel ship. Against the unprotected face the hard-driven spume stung like the flying particles of a sandstorm.
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> It was terrible and magnificent.
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> At 8 o'clock the barometer reached its lowest mark and stood at 28.58. From this point the mercury rose steadily and the wind tended to abate. The humming reverberation of the ship under the pounding seas gradually lessened and the general strain was relieved before night fell.
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> The *Sherman* went into Nagasaki harbor and quarantine two days later, with Asiatic cholera among her crew and one death.

From September 10 to 12 the U. S. Navy transport *Pensacola*, from San Francisco for Manila, while in latitude 13° 30′ N., longitude 140°–135° E., experienced stormy weather and moderate southerly to westerly gales, with long rolling seas. On the 10th reports of a typhoon to the northwestward were received.

[1] Chicago Daily News, Oct. 20, 1919.

On the 21st and 22d a third typhoon prevailed off the coast of Japan. Very complete reports of this storm have been received from the American steamship *Venezuela*, Capt. G. W. Yardley, Yokohama for Honolulu, and the British steamship *Methven*, Capt. L. D. Douglas, Yokohama for Vancouver. The former vessel passed through the center of the storm from 3:10 a. m. to 4:15 a. m. of the 22d, latitude 35° N., longitude 150° 2′ E. The lowest barometer reading was 28.44 inches. On the 21st the *Methven* was found to be in the left-hand semicircle of this typhoon, proceeding on the same general course. The wind held steadily from the north for a considerable time, until the ship was hove to so as to permit the typhoon to cross her desired course to the eastward.

First Officer E. A. Winkworth, observer on the *Methven*, reports an interesting phenomenon, observed during the height of the storm. "A remarkable phenomenon of the sky at one period," says Mr. Winkworth, "was the appearance of a practically clear opening in the clouds, circular in shape and showing through as a light yellowish patch, its diameter covering an arc of 10° and its bearing from the ship in the direction of the storm field. The edges of this opening were torn and wild looking. This lasted for a considerable time, until a squall was experienced and it was not observed again."

Reports received are too few to permit of giving the exact paths of the typhoons.

NORTH AMERICA.

By A. J. HENRY.

The outstanding features of the weather seem to have been the breaking of the prolonged drought in the northern Rocky Mountains and Great Plains, and, in general, a reversal to some extent of the normal rainfall distribution for the month. Very little rain fell in the Gulf and South Atlantic States where heavy September rains are the rule. In the far Southwest a period of four days with light rains was the feature of the month. Temperature was generally above the normal. Pressure distribution was more or less irregular. The high pressure east of the Mississippi and south of the Ohio was probably closely associated with the shortage of precipitation in that region. Storm activity for the month was confined to the northern border, the Gulf of Mexico, and to Asiatic waters.

NORTH ATLANTIC OCEAN.

By F. A. YOUNG.

According to observations received from land stations, the mean pressure for the month of September was practically normal on the American coast north of Hatteras, and somewhat lower than usual south of that point, as well as in West Indian waters and the Bermudas; it was nearly normal in the British Isles and slightly above in the Azores.

At Greenwich mean noon on September 3 there was a slight depression central near Nantucket (see Chart IX) accompanied by light to moderate winds. According to

reports received from a number of vessels in that locality, this disturbance developed into a violent cyclonic storm a few hours afterwards, although it was of short duration and limited extent. Ensign Roger Brooks, United States Navy, who was attached to the U. S. S. *Zeppelin*, reported that the barometer began to fall at about 3 a. m. on the 3d, light southerly winds prevailing at the time. The barometer continued to fall until 3 p. m. when the lowest reading of 29.52 inches was observed. At 11 a. m. the direction of the wind was SSE. force 7, and increased in intensity to SW. by S., force 10, at 3:05 p. m. when the last rain squall occurred. The sky then cleared, with diminishing wind and rising barometer. During the height of the gale some seas came over the bows of this 15,000-ton ship, and the spray went over the tops of the funnels. The weather after 4 p. m. was sunny, with Cu.Nb. clouds about the horizon. At the time of the first heavy blow, the vessel was about 550 miles east of New York, while her position at Greenwich mean noon, September 3, was latitude 39° 44′ N., longitude 61° 15′ W.

Capt. R. C. Henderson of the British steamship *City of Oran* encountered the same storm and was not far west of the *Zeppelin*, as at local mean noon September 3 the position of his vessel was given as latitude 40° north, longitude 64° 31′ west. At 4 a. m. on the 3d the barometer read 29.98 inches; it then fell rapidly to 29.60 inches at 9:30 a. m., when the wind began to freshen. By 11 a. m. it was blowing a whole gale from the southeast, the barometer reading 29.15 inches, and by noon the wind had increased in intensity to over 90 miles an hour, and the barometer had fallen to 28.85 inches, which was the lowest reading recorded. During this period it was impossible to keep the ship headed into the wind with the engine turning ahead at full speed. After 1 p. m. the barometer began to rise and the wind to shift, gradually working around through the south to WSW. by 3 p. m. This caused a breaking sea which created considerable damage, as windows in the bridge shelter were blown in, one lifeboat smashed, and other minor injuries sustained. Capt. Henderson stated that while this storm was of short duration, the wind was the most violent he had ever experienced. As an illustration of its force, the hold ventilators were swaying like wind vanes, while on ordinary occasions it takes a man's full strength to turn them a little at a time. A number of other vessels sent in reports regarding this storm, but none of them apparently experienced as heavy weather as the *Zeppelin* and *City of Oran*.

At Greenwich mean noon on September 3, as shown on Chart IX, there was a second disturbance central near latitude 50°, longitude 25°, that was much greater in extent and duration than the one just described. A number of vessels near the center reported barometer readings of between 28.95 inches and 28.99 inches, and in the storm log the observer on board the American steamship *West Harcuvar* states: "Gale began on the 2d; wind southwest. Lowest barometer, 28.93 inches on the 3d; latitude 49° 02′ N., longitude 23° 15′ W. End of gale on the 5th; highest force 75 miles an hour; shifts of wind near time of lowest barometer, 12 points to northwest."

During the next 24 hours, as shown on Chart X, the western disturbance moved rapidly northeastward, and on the 4th the center was near St. Johns, Newfoundland, where the barometer reading had fallen from 30.20 inches on the 3d to 29.40 inches. Moderate southerly gales were reported in the easterly quadrants, while winds of less force were prevalent over the region south and west of St. Johns, with rain along the Canadian coast. On the 4th the center of the eastern low was near latitude 52°, longitude 20°, and while the barometer readings near the center were somewhat higher than on the previous day, strong gales still prevailed in the southern quadrants, as shown on Chart X.

From September 7 to 14 one of the most severe and protracted tropical hurricanes on record prevailed in the West Indies and Gulf of Mexico. This storm is described elsewhere (see pp. 664, 673), and Charts XI to XVIII show the general conditions at Greenwich mean noon of each day during its existence. Since the extremely low barometer readings reported were observed between Greenwich mean noon observations, the data on the charts do not show the minimum pressures or maximum wind velocities, especially as on some days there were comparatively few vessel reports received from localities where they were most needed.

On the 14th (see Chart XVIII) there were a number of vessels in the eastern part of the northern steamer lanes that encountered southerly gales of from 40 to 50 miles an hour. On the 15th one vessel near latitude 56°, longitude 28°, reported a westerly wind of over 60 miles an hour, but as no reports were received from other vessels in that locality, it was impossible to determine the extent of the disturbance.

On a number of different days during the remainder of the month widely scattered observations were received from vessels in the northeastern division of the ocean, indicating extensive areas of low pressure with winds of gale force, although not enough reports have been received up to date (October 31) for an accurate charting of the conditions in this region.

NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

British Isles.—The month was distinguished by great fluctuations in temperature, some daily readings being unusually high for the time of year and others equally low. Snow fell [about the 20th] over a large portion of North Britain, and sleet or hail in many southern districts. The general rainfall, expressed as a percentage of the average, was: England and Wales, 78; Scotland, 112; Ireland, 97.—*Symons's Meteorological Mag., Oct., 1919, p. 109.*

Argentina-Chile.—It has again been necessary to abandon the efforts being made to reestablish passenger traffic across the Andes over the sections of the Transandine Railway, which have been blocked by snow since May last.—*New York Sun, Oct. 13, 1919.*